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EPIDEMIOLOGY OF PELVIC INFLAMMATORY DISEASE IN ALBERTA, 1974-1982

by

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Abstract

This paper presents the trends in hospitalization for pelvic inflammatory disease (PID) in Alberta between 1974 and 1982. In 1974 and 1982, respectively, there were about 1,900 and 2,620 cases in the province of hospital separations for PID of women aged 15 to 44 years. During this period, the PID rate increased by 16% among women aged 15 to 19. This group posted an average annual rate of about 60% above the Canadian rate for the same period. Women aged 20 to 24 years evidenced the greatest rates for PID in Alberta throughout 1974 to 1982.

Key words: Pelvic inflammatory disease, infertility, sexually transmitted disease, Alberta

Introduction

Pelvic inflammatory disease (PID) has been recognized as an important indicator of the health of women in relation to their reproductive performance (Adebayo, 1988; Adler, 1980; Burkman, 1981; Cunningham, 1979; Todd, 1986; Eschenbach, 1980). Pelvic inflammatory disease is a worldwide problem (Burkman, 1981; Westrom, 1980). It has been reported that the annual incidence of PID among women 15 to 39 years of age stands at an estimated 10 cases per 1,000 population in the Western industrialized countries (Westrom, 1980). In the United States, for example, the annual incidence of PID is estimated at about 2 percent among fecund, sexually active women aged 13 to 44 (Westrom, 1980). Recently, Todd (1986) assessed trends in hospitalization for PID in Canada from 1971 to 1981 and found that there were more than 160,000 hospital separations for pelvic inflammatory disease among women aged 15 to 44 years, and the rate of hospitalization rose by 22 percent during this period.

Pelvic inflammatory disease, which is sometimes referred to as salpingitis, is an infection of the female reproductive organs such as the uterus, tubes, ovaries, and the broad ligament that supports the structure (Cunningham, 1979). It is caused by infective organisms which infiltrate the pelvic organs. The disease often begins with an infection in the vagina and cervix and ascends into the uterus, tubes, and ovaries (Editorial, BMJ, 1979:1588). Pelvic inflammatory

disease is sometimes a symptom-free disease. However, if the symptoms appear, they include lower abdominal pain, pain with ovulation or intercourse, increased menstrual cramps, nausea, and abnormal vagina discharge.

Social epidemiologists, public health officials, and demographers have long been concerned with the predisposing factors to the development of pelvic inflammatory disease (Eschenbach et al., 1975; Eschenbach and Holmes, 1979; Eschenbach, 1980; Ory, 1978; Westrom, 1980; Washington et al., 1985; Burkman, 1981; Rosenfeld et al., 1983). Some of the potential risk factors associated with pelvic inflammatory disease include the use of an Intrauterine Device (IUD). Several studies have indicated that women using an intrauterine contraceptive device have a higher rate of pelvic inflammatory disease than all other sexually active women (Edelman et al., 1982; Kaufman et al., 1980; Osser et al., 1980; Paavonen and Westrom, 1980; Kelagham et al., 1982; Rosenfeld et al., 1983; Wolner-Hansen et al., 1983 and 1985). For example, Eschenbach (1985:2) contends that:

> Women who are long-term users of Delkon Shields have an estimated eight-fold risk of salpingitis because of bacteria ascending the multi-filament tail string and because the IUD may influence the microflora (actinomyces and other anaerobic colonization).

Three aspects of sexual activity have also been identified as critical to the development of pelvic inflammatory disease: 1) frequency of intercourse, 2) number of sex part-

ners, and 3) age at first intercourse (Westrom, 1984). Both coital frequency and number of sexual partners often determine the frequency of exposure to sexually transmitted pathogens (STP).

Age is another risk factor associated with the development of PID. For example, adolescent females are at higher risk of developing pelvic inflammatory disease (Eschenbach, 1977 and 1985; Westrom, 1980). This group manifests a high prevalence of STD (Echenbach, 1980) and has multiple sexual partners (Richard, 1986).

Long-Term Sequelae

Pelvic inflammatory disease presents a broad spectrum of long-term sequelae including infertility (Eschenbach, 1985; Westrom, 1975), ectopic pregnancy (Westrom, 1975, 1986, and 1980), and chronic pain (Westrom, 1980). Pelvic inflammatory disease has been identified in a number of studies as one of the major causes of female involuntary infertility. In a recent study, Eschenbach (1985:1) found that "about 15 percent of women became sterile after one infection, and 30 percent after two infections. . . ." A study conducted by Westrom (1975) also confirmed that the proportions of women who were unable to become pregnant were 13 percent, 36 percent, and 75 percent after one, two, and three or more episodes of pelvic inflammatory disease, respectively. Some studies have identified ectopic

pregnancy with pelvic inflammatory disease (Westrom, 1975; Eschenbach, 1985). Westrom (1975) confirmed that the ectopic pregnancy rate of women who became pregnant is ten times higher than that of women with a PID episode. A study conducted by Urquhart (1979) also found that women in the post-PID state have a ten-fold increased risk for ectopic pregnancy.

Another medical consequence of PID involves chronic pain. Westrom (1975) reported a four-times higher rate of chronic pelvic pain among women with confirmed pelvic inflammatory disease than a group of women with no episodes of pelvic inflammatory disease. Another recent study conducted by Westrom (1980) indicates that the majority (63 percent) of the women who suffered from chronic pelvic pain after PID were involuntarily infertile. In addition to the high incidence of infertility, ectopic pregnancy, and chronic pain associated with an episode of PID, many investigators have underscored the fact that women who have had one episode of PID run a higher-than-average risk of acquiring a second infection (Westrom, 1984). Women with an episode of PID are vulnerable to miscarriage and stillbirth.

Despite the significant interest in the role of pelvic inflammatory disease in reproductive dysfunction, not a single study exists that analyzes trends and determinants of PID in Alberta. The lack of interest in the epidemiological analysis of PID is partly due to 1) the dearth of

information on this disease, 2) data on office visits for pelvic inflammatory disease are difficult to obtain, 3) the number of pelvic inflammatory disease cases treated on an ambulatory basis in Alberta is elusive, and 4) only 10 to 15 percent of all patients treated for PID are admitted to hospital (Todd, 1986). The purpose of this paper is to present the trends in pelvic inflammatory disease in Alberta from 1974 to 1982 (the last year for which complete data are available).

Data and Findings

Since there is no national reporting system for pelvic inflammatory disease in Canada, hospitalization figures are often used to determine its incidence (ICDA-8 codes 612, 613, 614, and 616 and ICD-9 code 614). Data were provided by the Management Office, Institutional Care Section, Statistics Canada.

Table 1 presents the overall trends in hospitalization for pelvic inflammatory disease in Alberta between 1974 and 1982. As may be seen from the Table, there were 1,900 hospitalizations for pelvic inflammatory disease for women aged 15 to 44 years in Alberta in 1974. This figure escalated to 2,620 in 1982 (the last year for which figures are available). There is therefore a 38% increase in the number of hospitalizations for pelvic inflammatory disease in the province for the period 1974 to 1982 compared with

an increase of about 29% in Canada. A major portion of this increase (9 percent) occurred between 1981 and 1982. The total number of hospital separation cases (18,946) among women aged 15 to 44 years in Alberta between 1974 and 1982 represents about 15 percent of the total number of hospital separations for women in the same age group in Canada as a whole during this period.

Table 1 -- Number of Hospital Separations for Pelvic Inflammatory Disease and Rate per 100,000 Among Women Aged 15 to 44 Years in Alberta, 1974-1982.

Year	Number of Separations	Rate
1974	1900	457.3
1975	1728	395.7
1976	1876	407.2
1977	1969	403.2
1978	1963	385.7
1979	2234	419.2
1980	2262	404.3
1981	2394	405.4
1982	2620	428.6
Total	18946	411.8

Alberta has one of the highest rates of pelvic inflammatory disease in Canada. Figure I compares the hospital separation rates for pelvic inflammatory disease in Canada

and Alberta for the period 1974 to 1982. Alberta's rate of pelvic inflammatory disease has always been higher than the national average. In 1982, for example, 299.3 cases of PID were recorded for 100,000 women in Canada, while Alberta alone recorded 428.6 cases per 100,000 in that year (see Appendix A). Alberta's rate almost doubles the national average. In general, the Alberta rate of pelvic inflammatory disease averaged about 40 percent higher than the national rate between 1974 and 1982.

Figure II depicts the age-specific hospital separation rates for pelvic inflammatory disease in Alberta between 1974 and 1982. The highest rate of pelvic inflammatory disease occurs among women aged 20 to 24. Women in this age group, for example, had a rate almost twice that of women aged 35 to 44 in 1982 (see Appendix A). The Alberta rates for women aged 20 to 24 were about 41 percent higher than the national figures for 1974 to 1982. At the same time, women aged 15 to 19 had the second highest rate of PID per 100,000 during the period 1974 to 1982. This group posted an average annual rate of about 60 percent above the national rate for the same period.

FIGURE I

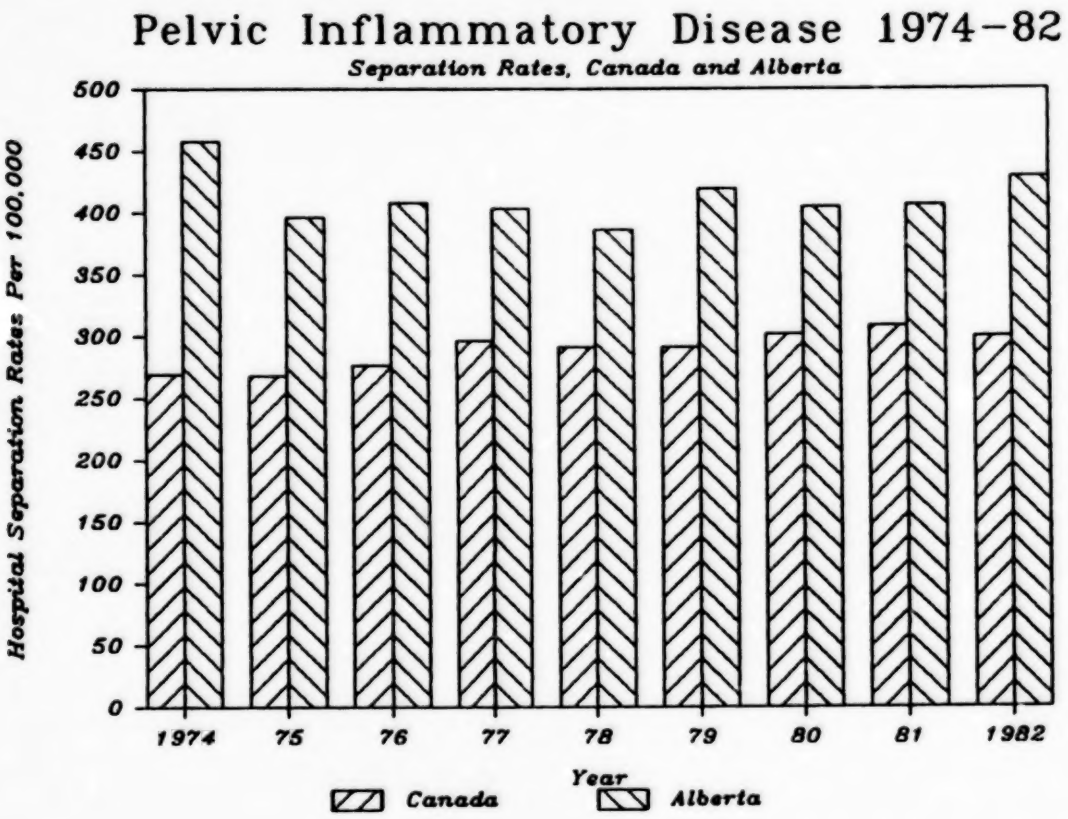
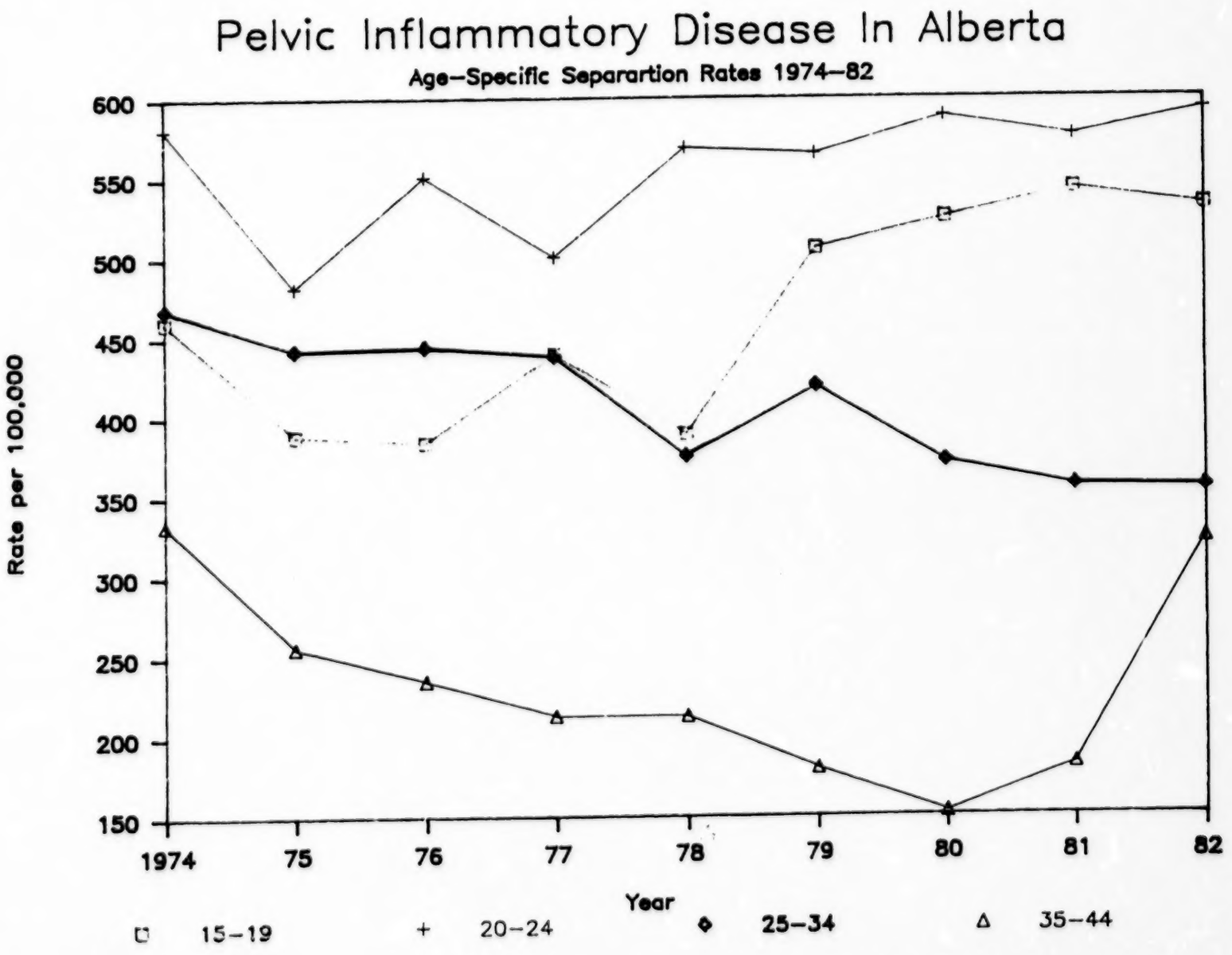

Pelvic Inflammatory Disease 1974-82
Separation Rates, Canada and Alberta
Hospital Separation Rates Per 100,000
500
450
400
350
300
250
200
150
100
50
0
1974
75
76
77
78
79
80
81
1982
Year
Canada
Alberta

FIGURE II


Pelvic Inflammatory Disease In Alberta
Age-Specific Separartion Rates 1974-82
Rate per 100,000
600
550
500
450
400
350
300
250
200
150
1974
75
76
77
78
79
80
81
82
Year
15-19
20-24
25-34
35-44

Conclusions

Given the fact that hospitalization figures for pelvic inflammatory disease do not reflect the true incidence of the disease--for example, only 10 to 15 percent of all patients treated for PID are admitted to hospital (Todd, 1986)--the figures presented here provide a reasonable estimate of the incidence of PID in Alberta.

It is evident that PID is a serious public health problem in Alberta, especially when we consider the long-term sequelae of PID--infertility, ectopic pregnancy, and chronic pelvic pain. As indicated earlier, about 10 to 15 percent of pelvic inflammatory disease cases result in involuntary infertility (Westrom, 1986). This would imply that about 1,895 cases of infertility were present in Alberta, mostly among adolescents, during the period 1974 to 1982.

There is an urgent need for more systematic data collection on the prevention and treatment of PID in Alberta. It would also prove enlightening to conduct comprehensive epidemiological studies on the etiologic, social, economic, and demographic characteristics of women who have encountered this disease in Alberta. Such efforts would provide more data based on the true incidence of the disease, the population at risk and, perhaps, enhance intervention programs aimed at reducing pelvic inflammatory disease in the province.

Acknowledgement

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APPENDIX A

Hospital Separation Rates for Pelvic Inflammatory Disease, Canada and Alberta, 1974-1982

Year	Canada	Alberta
1974	269.6	457.3
1975	268.3	395.7
1976	276.8	407.2
1977	296.4	403.2
1978	291.4	385.7
1979	291.0	419.2
1980	301.6	404.3
1981	308.8	405.4
1982	299.3	428.6

Age-Specific Separation Rates for Pelvic Inflammatory Disease in Alberta, 1974-1982

Year	15-19	20-24	25-34	35-44
1974	460.2	581.0	468.1	332.7
1975	388.7	481.6	442.3	256.3
1976	384.9	551.4	444.3	235.9
1977	440.2	501.0	438.4	213.7
1978	389.4	569.2	375.3	213.3
1979	506.2	565.0	418.9	180.0
1980	525.5	588.7	371.4	152.2
1981	543.5	576.6	356.0	182.7
1982	533.1	593.1	354.7	323.1

Note: Rate per 100,000 Women

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